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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,527	03/17/2004	Wolfgang Bredow	MFR 125	2290
23995	7590	04/18/2006	EXAMINER	
RABIN & Berdo, PC 1101 14TH STREET, NW SUITE 500 WASHINGTON, DC 20005			D AGOSTA, STEPHEN M	
			ART UNIT	PAPER NUMBER
			2617	

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/801,527	<b>Applicant(s)</b> BREDOW ET AL.	
	<b>Examiner</b> Stephen M. D'Agosta	<b>Art Unit</b> 2617	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 April 2006.  
2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-7 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed 4-6-2006 have been fully considered but they are not persuasive.

1. The applicant argues that the prior art does not teach two receivers. The examiner disagrees - first and foremost, the examiner interprets any claim put before him in its broadest sense possible. The applicant's claims are written in a very broad manner, meaning the term "receiver" can be either just an antenna and/or a "system" which comprises an antenna and a demodulator. The applicant's specification and diagrams do not provide sufficient detail as to rule out that a receiver can be just an antenna (as interpreted by the examiner), eg. there is no diagram as to what the applicant's receiver is envisioned to be – the examiner believes a better term would be "demodulator" instead of receiver (and/or provide further definition in the claims).

Secondly, the examiner notes that a single demodulator/receiver with two antennas will operate similarly to a two-demodulator system, hence there is no novel difference between the applicant's claims and the prior art of record (The examiner has provided supplementary prior art for the record which show different designs that use multiple "demodulators/receivers". The examiner notes that a common demodulator can be used and/or multiple demodulators can be used to achieve the same result).

Furthermore, the applicant's specification states that "Second transceiver TR2 receives the control signals required for controlling the working units either directly from the first transceiver TRI, which is controlled by the operator, or indirectly from the first transceiver TRI via the third transceiver TR3..." (page 3). Hence an indirect path would be one that emanates from the second receiving antenna (as per the prior art of record).

2. The examiner invites the applicant to amend the claims such that they particularly point out and distinctly claim their invention, eg. define the receivers as comprising demodulator hardware, etc.. Also, the term "widely space apart" is a relative term of degree (no range has been provided by the applicant).

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-4 and 7** rejected under 35 U.S.C. 103(a) as being unpatentable over Fredriksson US 6,467,039 and further in view of Chang et al. US 5,692,019 and Ling et al. US 6,172,970.

As per **claim 1**, Fredriksson teaches a remote controlled industrial equipment (figure 11 teaches remotely controlled cranes), comprising:

at least one transmitter (figure 11 shows several crane operators which have monitor/control equipment, see 4i, 5i and 6i, which inherently requires a transmitter to transmit control commands to crane);

at least one first receiver which triggers a controller for a working unit of the industrial equipment (figure 11 shows each crane with a transceiver on-board, see 1r, 2r and 3r, this controls the crane); and

a continuous control connection from the transmitter to at least the first receiver is established for the purpose of converting control signals of the transmitter into working movements of the industrial equipment when at least one of the receivers directly receives the control signals of the transmitter (C15, L4-52 teaches a control operator who sends commands to the crane in order to control it)

**but is silent on** at least one second receiver that is operable parallel to the first receiver, the first receiver being arranged with a first part of the industrial equipment and the second receiver being arranged with a second part of the industrial equipment, the first and second parts of the industrial equipment being widely displaced from one another.

**Chang** teaches "In an FM communication system, such as a one-way or two-way messaging system, a phenomena known as "fading" occurs in which a signal is distorted and its strength weakened

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at a communication receiver, by the topography of a particular geographical location such that the signal received by the communication receiver contains erred information. In most cases, the erred information in the received signal caused by fading can be corrected by using an encoding and error correcting scheme for the information to be transmitted on the radio frequency carrier. For example, interleaving the digital data has proven an acceptable and useful solution. Another solution to fading problems is to provide two antennas spaced apart from each other on the receiver to create spatial diversity." (C1, L10-25)

Furthermore, **Ling** teaches an antenna diversity receiver with two receiver antennas (figure 1 shows ANT 1 and ANT 2) which selects the antenna having the higher/better signal quality (C6, L56 to C7, L25).

**With further regard to claim 5, Chang** teaches antennas being spaced apart (eg. associated with different parts of the industrial equipment widely displaced from one another) while **Ling** teaches antenna diversity whereby one of the two antennas is selected based on better signal quality. Hence if the first antenna cannot receive the signal but the second antenna can, the second antenna's signal will be used, which reads on "such that when a control connection between the transmitter and the first receiver can not be established, a control connection from the transmitter to the second receiver can be established for converting control signals of the transmitter into working movements of the industrial equipment, and such that when the control connection between the transmitter and the second receiver can not be established, the control connection from the transmitter to the first receiver can be established for converting the control signals of the transmitter into the working movements of the industrial equipment".

It would have been obvious to one skilled in the art at the time of the invention to modify Fredriksson, such that at least one second receiver that is operable parallel to the first receiver, the receivers being arranged with parts of the industrial equipment widely displaced from one another AND associated on different parts and establishing control via one of the two antennas, to provide means for using antenna diversity for optimal reception of remote RF commands.

As per **claim 2**, Fredriksson teaches claim 1 **but is silent on** wherein the first and second receiver are connected together via a permanently installed control line on the industrial equipment.

Ling teaches the two receiver antennas being connected via a baseband processor (see figure 1). The diagram also shows both signals being summed and inputted into a Front End RF Circuit as well.

It would have been obvious to one skilled in the art at the time of the invention to modify Fredriksson, such that the first and second receiver are connected together via a permanently installed control line on the industrial equipment, to provide means for comparing the two received signals at a central point to determine the optimal command signal which will be used.

As per **claim 3**, Fredriksson teaches claim 1, wherein the first and second receivers are at least partially configured as transceivers for establishing a radio feedback channel (C15, L5-35 teaches communications occurring between the crane and the operator in a feedback/transmitting manner).

As per **claim 4**, Fredriksson teaches claim 1, wherein a control connection between the transmitter and the respective receivers, to a controller of a working unit of the industrial equipment, which facilitates a conversion of the control signals into the working movements, contains additional information about an identity and/or a location of the transmitter/receivers for influencing a type and/or a scope of the working movements (C15, L5-35 teaches a crane operator sending commands to the crane. It also teaches the use of an identity, eg. 1i, 2i or 3i in figure 11).

As per **claim 7**, Fredriksson teaches claim 5, wherein at least one of the receivers and the transmitter comprises a transceiver (C15, L4-35 teaches both the crane operator and crane having transmit/receive capability).

**Claim 6** rejected under 35 U.S.C. 103(a) as being unpatentable over Fredriksson, Chang and Ling and further in view of Wenzel et al. 2003/0058087.

As per **claim 6**, Fredriksson teaches claim 5 **but is silent on** wherein the transmitter is portable.

Wenzel teaches a remote controlled construction device with portable/handheld controller/transmitter (abstract and see figure 3).

It would have been obvious to one skilled in the art at the time of the invention to modify Fredriksson, such that the transmitter is portable, to provide means for the control operator to be located at best vantage point needed to see/operate the remotely controlled device.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

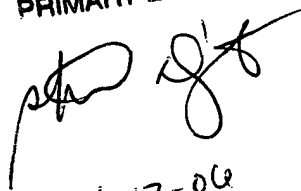
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 571-272-7862. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

STEVE M. D'AGOSTA  
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read 'SDA', is written over the printed name of the examiner.

4-12-06